

Notice of Allowability

Application No.

10/027,442

Examiner

Yean-Hsi Chang

Applicant(s)

MONTGOMERY ET AL.

Art Unit

2835

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to telephone communication April 29, 2004.
2. ☒ The allowed claim(s) is/are 1-26.
3. ☒ The drawings filed on 23 June 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

EXAMINER'S AMENDMENT

1. The application has been amended as follows: In claims 1 and 6, replace "at least one carbon nanotube bundle" in line 2 with "a plurality of carbon nanotube bundles".

Allowable Subject Matter

2. Claims 1-26 are allowed.
3. The following is an examiner's statement of reasons for allowance: The best prior art of record, Eckblad et al. (US 6,407,922 B1), Tobita (US 2002/0090501 A1), O'Connor et al. (US 2002/0145194 A1), and Schumann et al. (US 6,006,168), taken alone or in combination, fails to teach or reasonably suggest a thermal interface comprises a plurality of carbon nanotube bundles embedded in an interstitial material as set forth in claims 1 and 6; or a heat transfer structure comprising a plurality of bundles of nanotubes of a thermal conductive element having a first surface coupled to a heat sink and a second surface coupled to a semiconductor die as set forth in claims 9, 14, 17 and 20; and a method of providing the same as set forth in claim 24. Claims 2-5, 7-8, 10-13, 15-16, 18-19, 21-23, and 25-26 are dependent claims from claims 1, 6, 9, 14, 17, 20, and 24, respectively. In addition, Eckblad teaches a thermal spreader comprising a

Art Unit: 2835

plurality of bundles of carbon nanotubes provided between a surface of a heat sink and a surface of a heat source, but the axes of the bundles are not substantially parallel to a heat transfer axis or substantially perpendicular to the surfaces of contact. Tobita teaches the axis of carbon nanotubes being substantially parallel to the axis of heat transfer, but fails to teach the carbon nanotubes being formed in a plurality of bundles.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Correspondence

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yean-Hsi Chang whose telephone number is (571) 272-2038. The examiner can normally be reached on 07:30-16:00.

If attempts to reach the examiner by telephone are unsuccessful, the Art Unit phone number is (571) 272-2800, ext. 35. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3431 for regular communications and for After Final communications. There are RightFax numbers and provide the fax sender with an auto-reply fax verifying receipt by the USPTO: Before-Final (703-872-9318) and After-Final (703-872-9319).

Art Unit: 2835

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-8558.

Yean-Hsi Chang

Patent Examiner

Art Unit: 2835

April 30, 2004

A handwritten signature in cursive script, reading "Yean-Hsi Chang". The signature is written in black ink and is positioned below the printed name and title.